Propane Autogas School Buses

Fact Sheet

Blue Bird / ROUSH CleanTech Partnership

- Since 2012, Blue Bird and ROUSH CleanTech have partnered to offer two types of school buses fueled by propane autogas[1]: Type A Micro Bird and Type C Vision.

- There are more than 18,700 school buses equipped with ROUSH CleanTech fuel systems in over 1,000 school districts across North America.

- More than 37% of the nation's largest school districts operate propane school buses, including Boston Public Schools, East Chicago Public Schools, Florida's Broward County Public Schools and Detroit Public Schools.

Health and Environment

- Propane buses offer a safe, clean and healthy ride to school without an expensive investment.

- Blue Bird propane buses use 7.3L V8 Ford engines with a ROUSH CleanTech propane fuel system. The engine is certified to the optional ultra-low nitrogen oxide (NOx) level of 0.02 grams per brake horsepower-hour, which is 90% cleaner than EPA's most stringent heavy-duty engine standard and 99% cleaner than diesel buses built before 2007.

- School buses that run on propane autogas emit fewer greenhouse gases, smog-producing hydrocarbons, nitrogen oxides and virtually eliminate particulate emissions compared with conventional fuels.

- According to a West Virginia University study released in 2019, propane autogas school buses reduce NOx by at least 95%. In real world applications of stop-and-go bus driving, diesel emissions are **34 times** higher than with propane.

- A 2019 Georgia State study shows diesel school bus fumes drive down test scores. The study correlated increased academic performance in math and English when children were exposed to lower levels of school bus emissions.

- Propane buses reduce noise levels by about 50% when compared to diesel, reducing noise in communities and allowing drivers to focus more on students and the road ahead.

- Both the Environmental Protection Agency and the California Air Resources Board have certified the ROUSH CleanTech fuel system in propane autogas school buses.

Economics

- A case study from the U.S. Energy Department's Alternative Fuels Data Center explains how school districts save nearly 50% on a cost per mile basis for fuel and maintenance.

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[1] Propane autogas is the internationally recognized term for propane when used in on-road engines.

- On average, propane autogas costs about 50% less than diesel and about 40% less than gasoline.

- Propane removes the complexity and cost of after-treatment measures since it doesn't require additional fluids or filters; exhaust after-treatment or diesel emissions fluids; particulate trap systems; turbochargers or intercoolers.

- An oil change for a Blue Bird Vision Propane bus uses about seven quarts compared with 25 to 30 quarts for a typical diesel engine.

- Propane autogas school buses have no cold-start issues and warm up quickly, which saves school districts both time and money on equipment and staff.

- Hundreds of school districts have reported annual savings of up to $3,700 per bus due to lower fuel and maintenance costs compared with diesel.

- According to a World Liquid Gas Association report, if all the nation's diesel school buses were converted to propane autogas, U.S. school districts could hire more than 23,000 teachers with the fuel and maintenance savings.

- Since propane is classified as an alternative fuel by the Energy Department, there are a number of incentive programs to encourage adoption, including the 2021 infrastructure bill, government grants, VW settlement funding, Clean School Bus Program, market-based incentives (low-carbon fuel standards) and tax credits.

- Four propane buses can be purchased for every one electric bus, allowing school districts to replace old diesel buses faster and reduce carbon emissions immediately.

Safety and Performance

- All Blue Bird propane school buses meet and exceed Federal Motor Vehicle Safety Standards and Canadian Motor Vehicle Safety Standards.

- Propane fuel tanks are constructed from carbon steel in compliance with the American Society of Mechanical Engineers. They are 20 times more puncture-resistant than gasoline or diesel tanks and can withstand four times the pressure.

- The tank mounting systems are designed at twice the National Fire Protection Association requirement to ensure tanks remain securely attached even in a severe collision or rollover.

- Buses equipped with ROUSH CleanTech's propane autogas fuel systems retain equivalent horsepower, torque and towing capacity as gas and diesel counterparts.

- Propane autogas school buses can achieve a range of up to 400 miles on a single fueling, which is two and a half times farther than an electric bus can travel on a single recharge.

- At approximately 8 to 10 gallons per minute, fueling with propane autogas is comparable to gasoline and diesel fueling. Propane school buses use a quick-connect

nozzle that reduces fugitive emissions and resembles gasoline and diesel in ease of fueling.

Readily Available and Abundant

- More than 28 million vehicles travel worldwide with propane autogas in their fuel tank.
- More than 1.3 million students across the nation ride to school in propane autogas school buses each day. About 85% of them ride in Blue Bird propane buses.
- Propane autogas fueling infrastructure costs less than any other transportation energy source — conventional or alternative. Many school districts elect to install on-site propane stations, which are low- or no-cost with a fueling contract.

Domestic Resource

- Propane autogas is a leading alternative fuel in the United States. It has a high energy density and lower emissions than many other energy sources.
- More than 90% of the United States propane autogas supply is produced domestically, with an additional 7% from Canada.
- Almost 75% of propane used in the U.S. comes from natural gas refining, and the remaining comes from petroleum during the refining process. This is material that would otherwise be wasted if not used as a clean alternative fuel.
- Blue Bird buses powered by ROUSH CleanTech can operate on renewable propane, which is propane from non-fossil fuel sources like cooking oil. Renewable propane is carbon neutral, meaning no new carbon is added to the atmosphere when renewable propane is burned.

Learn More

- ROUSH CleanTech: ROUSHcleantech.com
- Propane Education & Research Council: BetterOurBuses.com
- Department of Energy's (DOE) Clean Cities: cleancities.energy.gov
- DOE Office of Energy Efficient and Renewable Energy: afdc.energy.gov
- World Liquid Gas Association: worldliquidgas.org

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